



## Recommended Resources for Outdoor Learning Environments

### Books:

Last Child in the Woods, Richard Louv (Algonquin Books, 2005)

Preschool Outdoor Environment Measurement Scale (POEMS), Karen DeBord, Linda L. Hestenes, Robin C. Moore, Nilda G. Cosco, & Janet R. McGinnis (Kaplan, 2005)

Play and Child Development, Joe Frost, Sue Wortham, & Stuart Reifel. (Prentice Hall, 2004)

The Developmental Benefits of Playgrounds, Joe Frost et al. (Association for Childhood Education International, 2004)

Natural Learning- Creating Environments for Rediscovering Nature's Way of Teaching, Robin C. Moore and Herb H. Wong (MIG Communications, 1997)

The Great Outdoors: Restoring Children's Right to Play Outdoors, Mary Rivkin (National Association for the Education of Young Children, 1995)

The Sense of Wonder, Rachel Carson (HarperCollins, 1998)

### Websites:

Natural Learning Initiative, NCSU: [www.naturalearning.org](http://www.naturalearning.org)  
<<http://www.naturalearning.org>>

NC Cooperative Extension: Making the Most of Outdoor Time with Preschool Children  
<http://ces.ncsu.edu/depts/fcs/human/pubs/FCS507.pdf>

NC Cooperative Extension: Preschool Outdoor Environment Measurement Scale (POEMS) <http://poemsnc.org/>

NC Botanical Garden: [www.ncbg.unc.edu](http://www.ncbg.unc.edu) <<http://www.ncbg.unc.edu/>>

NC Museum of Natural Science: [www.naturalsciences.org](http://www.naturalsciences.org)  
<<http://www.naturalsciences.org>>

## Research:

### **Professional Perspectives and Research on Children's Outdoor Environments North Carolina Outdoor Learning Environments Alliance**

*This document represents a beginning step in compiling information on outdoor environments for young children. Some of the information is based on professional perspectives and other information is based on empirical research. The empirical studies are denoted with a "\*". There are undoubtedly other chapters, articles, books, etc. that have not yet been included in this list. We would welcome feedback and suggestions for additions to this document, particularly those that are empirical research studies on outdoor environments and children.*

#### Importance/Advantages of Outdoors

- Outdoor play experiences can be as effective as indoor play in stimulating young children's development (Henniger, 1993).
- Outdoor environment is a unique learning setting which supports an array of activities different from those provided by the indoor setting (Talbot & Frost, 1989).
- Children experience a great sense of freedom in the outdoor settings (Davies, 1996).
- The large spaces provide opportunities for children to use their whole body to explore, plan and to implement these plans without limitations on noise and activity (Perry, 2003).
- Playgrounds are better than indoor classroom settings for activities that are messy or loud (Greenman, 1988).
- More friendly, non-violent, rough and tumble play and limited superhero or war play that are discouraged indoors can be accommodated outdoors (Frost, Wortham & Reifel, 2001).

#### Quality

- Children's experiences outdoors can be varied with some types of outdoors environments supporting children's learning, growth and development more effectively than the others (Frost, 1992 cited in Barbour, 1999).
- \* In a study of 41 programs, it was found that in lower quality outdoor environments children engaged more in functional or repetitive play, while in higher quality outdoor environments, children showed a tendency to display more constructive play than children in lower quality settings. As the quality of the outdoor program decreased, the frequency of negative behaviors increased (DeBord, Hestenes, Moore, Cosco, & McGinnis, 2005).

#### Playground Design- Fixed Equipment

- Many child care outdoor environments, even today, consist of isolated pieces of equipment in a mono-culture of grass (Herrington & Studmann, 1998).
- Fixed equipment leaves little room for children to play creatively, since there is generally a finite number of ways to use each aspect of the equipment (Brown & Burger, 1984; Walsh, 1993).
- Such play spaces are neither developmentally appropriate nor economically sound (Frost, Wortham & Reifel, 2001).
- \* In their study of children's play preferences in three types of public, accessible outdoor play settings (traditional, contemporary and adventure), Hayward, Rothenberg, and Beasley (1974) found that preschool children played more often in contemporary and traditional playgrounds while school-aged children played more often in adventure playgrounds.
- Traditional playgrounds consisting of fixed equipment (such as slides, swings, monkey-bars) do not offer opportunities for children to play creatively (Walsh, 1993) and promote competition rather than co-operation (Barbour, 1999).
- Safety standards and guidelines have led to the decrease in marketing of overhead apparatus, sliding poles, climbers, etc., for 2-to-5-year olds. Children therefore become bored and go to non-equipment forms of play or use equipment in unintentional ways (Frost, Wortham & Reifel, 2001).
- When children become bored, accidents are more likely to happen and therefore an important safety factor is to provide plenty of options for play (Frost 1985, cited in Striniste & Moore, 1989).
- These safety guidelines have led to a reduction in the number of accidents and increased safer opportunities for children's play, however, they have put limitations on the creativity, challenge, flexibility, and natural features of outdoor spaces (Frost, Wortham & Reifel, 2001).
- \* In their study of 2<sup>nd</sup> grade children, Frost and Cambell (1985, cited in Walsh, 1993) found that children preferred action-oriented equipment over static equipment and multiple function equipment over single function structures.

#### Playground Design-Natural Elements

- \* Moore and Cosco conducted a Baseline Survey of Environmental Conditions of Outdoor Areas in 326 North Carolina childcare centers and found a low level of environmental diversity. On average programs had 7 manufactured elements (sand boxes, fixed equipment, play house) and only 3 natural elements (usually grass, trees, and mulch).
- Creative playgrounds that include modular coordinated play installations as well as unique architectural designs having natural materials and forms, have been found to be more attractive and preferred by children (Greenman, 2005).
- \* Moore and Wong (1997) shared valuable lessons they learnt from their school based ecosystem, reinvented from a barren elementary school landscape. They reveal that children can peacefully coexist with nature. Nature is an economic, social, scientific, and cultural resource. They also found that peace and coexistence was fostered among children with the absence of boredom and antisocial behavior (cited in Frost, Wortham & Reifel, 2001).

- \* Installing natural materials and other landscape elements to children's outdoor play yards led to changes in children's spatial-cognitive awareness. Changes in the layout of the playground also challenged and increased children's physical competence and skills. Improvements were observed in children's socialization and fantasy play which lasted for longer durations (Herrington & Studmann, 1998).
- \* In their study of 41 playgrounds in North Carolina, Hestenes, Shim, & DeBord (2007) found that on playgrounds with more natural elements, children displayed less functional or repetitive behavior and more constructive (building, hypothesizing) play. Also, children who interacted more with the natural environment engaged in more constructive play and less functional play.

## Research on Developmental Areas

### *Physical Development*

- Outdoor play and outdoor environments are typically associated with physical movement and activities (Davies, 1996; Henniger, 1993).
- The unique features of the outdoors as compared to indoors includes the potentially greater space and freedom of movement available to children and the availability of equipment and materials that enable children to engage in large muscle activities as well as enhance fine motor development (Davies, 1996).
- \* Cullen (1993) in her study of preschool children's use and perceptions of outdoor play found that boys engaged in more physical play than girls.
- \* Barbour (1999) found that playground design influenced elementary children's physical skill development by facilitating or constraining the strategies they used to manage their play with peers. She also noted that children's engagement with materials and equipment in the physical environment affected their motor skill development and their physical competence.
- \* In a study by Baranowski, Thompson, DuRant, Baranowski, and Puhl (1993), preschool children spent an overwhelming amount of time indoors as compared to outdoors and their physical activity was lower inside than when they were outside.
- \* Poest, Williams, Witt and Atwood (1989) in their examination of physical activity patterns revealed that preschool children are not engaged in vigorous physical activity all year.
- \* Studies on children in child care also highlight the growing evidence of a sedentary lifestyle and the increase in childhood obesity rates (Pate, Pfeiffer, Trost, Ziegler, & Dowda, 2004).
- The National Association for Sport and Physical Education (NASPE, 2000) has developed guidelines for physical activity for children birth to five. These guidelines suggest that children should receive at least 60 minutes of daily structured physical activity and 60 minutes to several hours of daily unstructured physical activity.

### *Cognitive Development*

- \* Susa and Benedict (1994) investigated the effect of playground design on elementary school-aged children's pretend play and divergent thinking. Results indicated that creativity, which was related to the amount of pretend play, varied as a function of playground design. More pretend play and creativity occurred on the contemporary playground as compared to the traditional playground.
- The greater the number of environmental variables to which we expose children, the more inventiveness and creativity we will observe (Nicholson, 1973).
- \* Frost et al. (2001) in their observation of a high quality program found that the outdoor environment led to more symbolic play in both boys and girls as compared to the indoor environment.
- \* Shim, Herwig, and Shelly (2001), based on an observational study of three low quality programs, reported that preschool children were more likely to engage in more complex forms of peer play (i.e., interactive dramatic play) outdoors than indoors.

### *Social Development*

- Research on outdoor play has illustrated that outdoor environments can stimulate as much or even more social play compared to indoor environments (Hartle, 1996).
- The size of the construction material provided in the outdoor setting and the amount of space available outdoors can stimulate large projects which require cooperation and teamwork, and promote complex sociodramatic play themes (Davies, 1996).
- Spacious outdoor environments support a wide range of activities involving large groups of children, like group games with balls and parachutes (Naylor, 1985).
- \* Henniger (1985, cited in Davies, 1996) found differences in social play that occurred indoors and outdoors. More solitary activity was observed indoors while more parallel play was observed outdoors. Similar levels of cooperative play occurred in both the environments.

### *Emotional Development*

- The space available outdoors leads to fewer constraints of children's behaviors and enables them to find solitude away from other children and adults, engage in solitary activity or be in small, intimate groups. Such opportunities for solitary pursuits and experience of privacy are necessary for young children (Greenman, 1988).
- Jacobs (1980) suggested that privacy helps in the development of personal autonomy as it gives the child an opportunity to come to terms with his own thoughts and feelings. Privacy also enables children to release their emotions and

to gain respite from the pressures of social norms and expectations (Davies, 1996).

### *Research on Teachers' Role Outdoors*

- Many teachers view the outdoors as secondary to the learning which occurs indoors (Dighe, 1993; Henniger, 1993).
- \* Most teachers do not understand the full potential of the outdoor environment for children's development (Davies, 1996, 1997)
- \* Teachers who provided sterile outdoor environments with limited play choices and opportunities were those who either did not understand or underestimated the potential of outdoors to stimulate various aspects of children's learning and growth (Jones, 1989).
- \* Davies (1996), in her interview with 22 teachers in a preschool in Australia found that most teachers reported the primary function of the outdoor setting as promoting physical and social/emotional development.
- \* Teachers' beliefs were reflected on the way the outdoor environment was set up, with the most opportunities for children being related to physical development (Davies, 1996).
- \* In terms of diversity in the outdoor environment, less than half of the teachers thought about natural elements as a part of their outdoor curriculum and those who did seemed to believe that it would improve the playground attractiveness rather than further educational needs of the children (Davies, 1996).
- \* Most teachers shared the belief that children's play should be supervised, but children need freedom to engage in activities of their choice and freedom from teacher interventions (Davies, 1997)
- \* Teachers also perceived that their role was to set up the stage for play and direct children when they engaged in inappropriate behaviors (Davies, 1997).
- \* Studies on teachers' behaviors outdoors show that child care, preschool and nursery teachers rarely participate in children's activities outdoors (Brown & Burger, 1984) and their participation is mainly confined to setting up equipment and settling disputes among children (Jones, 1989).
- \* Teachers' interactions may also be influenced by the quality of the outdoor environment. DeBord et al. (2005) found that teacher behaviors that more frequently supported and facilitated children's experiences on the playground were observed on higher quality outdoor environments.
- \* Overholser and Pelerin (1980, in Striniste & Moore, 1989) surveyed Michigan child care and preschool facilities to see how they were meeting children's gross motor needs outdoors. Most were inadequate because they contained poorly designed equipment. In addition, there was evidence of a lack of teacher training related to gross motor development and curriculum.
- \* Wade's (1985, in Striniste & Moore, 1989) training program focused first on child development and then on specific "intervention strategies" for structuring the use of the playground setting. The training produced dramatic effects on children's cognitive and social outdoor play.

### *Research on Indoor Outdoor Connection*

- The best play and learning places for children flow between the indoor and the outdoor settings (Frost et al., 2001). More studies need to be conducted on programs that provide for such a connection.

### *Perspectives on Specific Aspects versus a Global View*

- An environmental specificity approach to study preschool outdoor environments is beneficial rather than investigating the global effects of playgrounds on children's development (Striniste & Moore, 1989).
- Using names like "traditional" and "contemporary" playgrounds which give a general view of one being "good" and the other being "bad" have not advanced our understanding of the effect of outdoor environments on children's development. The environmental specificity approach may prove to be more productive because it allows a systematic study of specific aspects of the outdoor environment (Striniste & Moore, 1989).
- \* Brown and Burger (1984) anticipated contemporary playgrounds to support more desirable play than traditional playgrounds but found no significant differences. However, they found that "encapsulated" spaces promoted more positive play. Such knowledge of specific features of the outdoor environments and their effect on children's play is valuable.

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